

REMARKS/ARGUMENTS

Applicant has carefully reviewed and considered the Office Action mailed on July 28, 2005, and the references cited therewith.

Claims 1, 5, 8, 11, 15, 16, 18-22, 25, and 27 are amended, and claims 10, 17, 23-24, and 28 are canceled; as a result, claims 1-9, 11-16, 18-22, and 25-27 are now pending in this application.

§102 Rejection of the Claims

Claims 1-7, 15, 16, 20, 21, 23, 24, and 27 were rejected under 35 USC §102(b) as being anticipated by Brulhart (U.S. Patent No. 6,259,306). Applicant notes that claims 23-24 are canceled. Applicant respectfully traverses the rejection for the applicable pending claims for the following reasons.

Applicant submits that the Brulhart reference appears to describe "current monitoring circuits suitable for controlling the charge and discharge of rechargeable batteries." (Col. 1, lines 6-7). In contrast, Applicant believes that the present invention as claimed in independent claims 1, 5, 15, and 27 differs from the Brulhart reference for at least the reasons described below.

Independent claims 1, 5, and 15, as currently amended, each recite in part "an alternating current switching circuit." Independent claim 27, as currently amended, recites in part "receiving alternating current (AC) from a source."

From the Applicant's review, the Brulhart reference does not disclose an alternating current switching circuit. Instead, the Brulhart reference appears to only describe switching circuits for use with direct current devices such as "rechargeable batteries (lithium, lithium-ion batteries, etc.), assuring the power supply of portable devices of various types (telephones, lap-top computers, timepieces, etc.)." (Col. 1, Lines 15-17).

Applicant's specification teaches that "current will flow in the reverse direction in MOSFET 242 or 244 depending on the polarity of the AC voltage source. That is, in the reverse direction as is normally used in DC circuits, that is drain to source in an N type MOSFET or source to drain in a P type MOSFET." (Paragraph 15). Figures 3 and 4 of the Brulhart reference appear to only show current flow in the direction normally used for direct current circuits – from source to drain for the N-type MOSFETs. Thus, the Brulhart reference does not disclose an "alternating current switching circuit" as recited in Applicant's independent claims 1, 5, and 15, or receiving "alternating current" as recited in

Applicant's independent claim 27.

As such, Applicant respectfully submits that the Brulhart reference does not disclose each and every element of Applicant's independent claims 1, 5, 15, and 27. Therefore, Applicant respectfully requests reconsideration and withdrawal of the 102 rejection of claims 1, 5, 15, and 27, as well as those pending claims that depend therefrom.

Claims 1-4, 8, 9, 13-16, 19-21 and 23-28 were rejected under 35 USC §102(b) as being anticipated by Suzuki (U.S. Patent No. 6,236,192). Applicant notes that claims 23-24 and 28 are canceled. Applicant respectfully traverses the rejection for the applicable pending claims for the following reasons.

Applicant submits that the Suzuki reference appears to describe "an AC voltage regulator." (Col. 1, line 4). In contrast, Applicant believes that the present invention as claimed in independent claims 1, 8, 15, 25, and 27 differs from the Suzuki reference for at least the reasons described below.

Independent claim 1, as currently amended, recites in part "a first intrinsic diode having a first anode coupled to said first source and a first cathode coupled to said first drain; a second intrinsic diode having a second anode coupled to said second source and a second cathode coupled to said second drain; a third diode having a third anode coupled to said first source and a third cathode coupled to said first drain; and a fourth diode having a fourth anode coupled to said second source and a fourth cathode coupled to said second drain."

Independent claim 25 as currently amended, recites in part "switching said alternating current utilizing a MOSFET switch having two MOSFET devices with coupled sources and coupled gates and two diodes antiparallel to each MOSFET device."

From the Applicant's review, the Suzuki reference does not disclose an AC switch with two MOSFETs and four diodes. Instead, the Suzuki reference appears to only describe "an AC switch made up of two unidirectional MOSFETs" (Col. 3, lines 19-20) and two diodes (Fig. 3). Support for embodiments of Applicant's invention with two MOSFETs and four diodes can be found at least from paragraph 14 of Applicant's specification, as currently amended, which teaches "antiparallel diodes 212 and 214 which may be utilized to bypass the intrinsic anti-parallel diodes 232 and 234 of the MOSFETs." This embodiment is also illustrated in Applicant's Figure 2.

Thus, the Suzuki reference does not disclose a “a first intrinsic diode having a first anode coupled to said first source and a first cathode coupled to said first drain; a second intrinsic diode having a second anode coupled to said second source and a second cathode coupled to said second drain; a third diode having a third anode coupled to said first source and a third cathode coupled to said first drain; and a fourth diode having a fourth anode coupled to said second source and a fourth cathode coupled to said second drain” as recited in Applicant’s independent claim 1. Further, the Suzuki reference does not disclose “two MOSFET devices with coupled sources and coupled gates and two diodes antiparallel to each MOSFET device” as recited in Applicant’s independent claim 25.

As such, Applicant respectfully submits that the Suzuki reference does not disclose each and every element of Applicant’s independent claims 1 and 25. Therefore, Applicant respectfully requests reconsideration and withdrawal of the 102 rejection of claims 1 and 25, as well as those pending claims that depend therefrom.

Independent claims 8 and 15, as currently amended, each recite in part “a first Field Effect Transistor (FET) having . . . a first drain; a second FET having . . . a second drain, [and] a snubber circuit with one resistor in series with one capacitor, wherein said snubber circuit directly connects said first drain to said second drain.” From the Applicant’s review, the Suzuki reference does not disclose “a snubber circuit with one resistor in series with one capacitor, wherein said snubber circuit directly connects said first drain to said second drain” as recited in Applicant’s independent claims 8 and 15.

Independent claim 27 as currently amended, recites in part “applying said alternating current across drains of two MOSFET devices of a switch, where there is a snubber circuit connected directly across the drains.” From the Applicant’s review, the Suzuki reference does not disclose “a snubber circuit connected directly across the drains” of two MOSFET devices as recited in Applicant’s independent claim 27.

As such, Applicant respectfully submits that the Suzuki reference also does not disclose each and every element of Applicant’s independent claims 8, 15, and 27. Therefore, Applicant respectfully requests reconsideration and withdrawal of the 102 rejection of claims 8, 15, and 27, as well as those pending claims that depend therefrom.

§103 Rejection of the Claims

Claims 17-18, and 22 were rejected under 35 USC §103(a) as being unpatentable over Brulhart (U.S. Patent No. 6,259,306) in view of Sugawara (U.S. Patent No. 5,635,826). Applicant notes that claim 17 is canceled. Applicant respectfully traverses the rejection for the applicable pending claims for the following reasons.

Claims 18 and 22 depend from Applicant's independent claim 15. From the Applicant's review, the Brulhart reference and the Sugawara reference, either independently or in combination, do not describe, teach or suggest "a first Field Effect Transistor (FET) having . . . a first drain; a second FET having . . . a second drain, [and] a snubber circuit with one resistor in series with one capacitor, wherein said snubber circuit directly connects said first drain to said second drain" as recited in Applicant's independent claim 15.

By contrast, each snubber circuit disclosed in the Sugawara reference appears to show a resistor and a capacitor connected from a source to a drain for each MOSFET. (Fig. 1). Column 4, lines 51-65 of the Sugawara reference states:

The first AC switch 7 has two n-channel MOS FET's Q1 and Q2 with the drains thereof on the cathode side and the sources connected in series, diodes D1 and D2 each connected between the source and drain of each MOS FET, and series circuit having resistors R11 and R12 and series capacitors C31 and C32, respectively, and each connected in parallel with each of the diodes D1 and D2. With this arrangement, which functions as a snubber circuit, AC control can be obtained between the drains of the two MOS FET's Q1 and Q2 as controlled terminals by supplying a common control signal to each of the gates of the MOS FET's Q1 and Q2. The second AC switch 8 has the same structure, with MOS FET's Q4 and Q5 which diodes D3 and D4 are connected to, resistors R13 and R14 and capacitors C33 and C34 form a snubber circuit.

The Sugawara reference describes a separate snubber circuit in parallel with "each MOSFET." Thus, the Sugawara reference teaches away from "a snubber circuit with one resistor in series with one capacitor, wherein said snubber circuit directly connects said first drain to said second drain" as recited in Applicant's independent claim 15. The Brulhart reference does not describe, teach or suggest snubber circuits. As such, Applicant respectfully submits that the Brulhart reference and the Sugawara reference, either independently or in

combination, do not describe, teach or suggest each and every element of Applicant's independent claim 15. Accordingly, since claims 18 and 22 depend from independent claim 15, and claim 15 is nonobvious, Applicant respectfully requests reconsideration and withdrawal of the 103 rejection of claims 18 and 22.

Claims 10, 11, 17, 18, and 22 were rejected under 35 USC §103(a) as being unpatentable over Suzuki (U.S. Patent No. 6,236,192) in view of Sugawara (U.S. Patent No. 5,635,826). Applicant notes that claims 17 and 22 are canceled. Applicant respectfully traverses the rejection for the applicable pending claims for the following reasons.

Claim 11 depends from Applicant's independent claim 8. Claims 18 and 22 depend from Applicant's independent claim 15. From the Applicant's review, the Suzuki reference and the Sugawara reference, either independently or in combination, do not describe, teach or suggest "a first Field Effect Transistor (FET) having . . . a first drain; a second FET having . . . a second drain, [and] a snubber circuit with one resistor in series with one capacitor, wherein said snubber circuit directly connects said first drain to said second drain" as recited in Applicant's independent claims 8 and 15.

The Suzuki reference describes "snubber circuits" (Col. 5, line 33), however the Suzuki reference does not describe, teach or suggest "a snubber circuit with one resistor in series with one capacitor, wherein said snubber circuit directly connects said first drain to said second drain" as recited in Applicant's independent claims 8 and 15.

As explained above, the Sugawara reference describes a separate snubber circuit in parallel with "each MOSFET." (Col. 4, lines 51-65). Thus, the Sugawara reference teaches away from "a snubber circuit with one resistor in series with one capacitor, wherein said snubber circuit directly connects said first drain to said second drain" as recited in Applicant's independent claims 8 and 15.

As such, Applicant respectfully submits that the Suzuki reference and the Sugawara reference, either independently or in combination, do not describe, teach or suggest each and every element of Applicant's independent claims 8 and 15. Accordingly, since claim 11 depends from independent claim 8, and claims 18 and 22 depend from independent claim 15, and claims 8 and 15 are nonobvious, Applicant respectfully requests reconsideration and withdrawal of the 103 rejection of claims 11, 18 and 22.

Claim 12 was rejected under 35 USC §103(a) as being unpatentable over Suzuki (U.S. Patent No. 6,236,192) in view of Brulhart (U.S. Patent No. 6,259,306). Applicant respectfully traverses the rejection for the applicable pending claims for the following reasons.

Claim 12 depends from Applicant's independent claim 8. From the Applicant's review, the Suzuki reference and the Brulhart reference, either independently or in combination, do not describe, teach or suggest "a first Field Effect Transistor (FET) having . . . a first drain; a second FET having . . . a second drain, [and] a snubber circuit with one resistor in series with one capacitor, wherein said snubber circuit directly connects said first drain to said second drain" as recited in Applicant's independent claim 8.

As explained above, the Suzuki reference does not describe, teach, or suggest "a snubber circuit with one resistor in series with one capacitor, wherein said snubber circuit directly connects said first drain to said second drain" as recited in Applicant's independent claim 8. The Brulhart reference does not describe, teach or suggest snubber circuits. As such, Applicant respectfully submits that the Brulhart reference and the Sugawara reference, either independently or in combination, do not describe, teach or suggest each and every element of Applicant's independent claim 8. Accordingly, since claim 12 depends from claim 8, and claim 8 is nonobvious, Applicant respectfully requests reconsideration and withdrawal of the 103 rejection of claim 12.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney Gregg W. Wisdom at (360) 212-8052 to facilitate prosecution of this matter.

At any time during the pendency of this application, please charge any additional fees or credit overpayment to the Deposit Account No. 08-2025.

CERTIFICATE UNDER 37 CFR §1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS AMENDMENT Commissioner for Patents, P.O. BOX 1450, Alexandria, VA 22313-1450 on this 27th day of October, 2005.

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